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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,496	07/25/2001	Robert J. Higgins	211897US99	4428
22850	7590	01/05/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WILLE, DOUGLAS A	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,496

Applicant(s)

HIGGINS ET AL.

Examiner

Douglas A. Wille

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

IDS

Applicant has submitted three IDSs dated 8 May 2003, 6 November 2003 and 14 March 2003. Since none of these IDSs contain a statement of relevance for each document, as required, they will not be considered. Applicant seems to argue that a bulk filing provides an automatic evaluation of an IDS. However, since each Application is unique, the IDS must be evaluated in consideration of the particular Application under consideration and cannot be prejudged. The IDS is voluminous and it would create an impossible burden on Examiner to review all the documents. Since, as has been noted, at least some of the documents are not specifically germane to the consideration of this Application, Applicant must provide evidence of the applicability of the references, if they are to be considered.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 4 and 6- 9 are rejected under 35 U.S.C. 102(b) as being anticipated by

Guenzer.

3. With respect to claim 1, Guenzer shows a structure (see cover Figure and column 2, line 35 et seq.) with a monocrystalline silicon layer 14 which may be regarded as a substrate if the structure is inverted, an alkaline earth BTO layer and a SiO₂ layer 20 which together are inherently a strain relief layer due to the lack of crystallinity of the SiO₂ and a layer 22 which

Art Unit: 2814

could be a piezoelectric such as LiNbO_3 (column 3, line 36) and could be acoustic. The semiconductor substrate is Si.

4. With respect to claim 3, LiNbO_3 is a metal oxide.
5. With respect to claim 4, the piezoelectric is LiNbO_3 .
6. With respect to claim 6, the layer 12 is BTO.
7. With respect to claims 7 and 9, the layer 20 is amorphous SiO_2 .
8. With respect to claim 8, layer 12 is crystalline BTO.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guenzer in view of Grudkowski et al.

11. With respect to claim 10, Gruenzer shows a structure that could be used for piezo- and acousto-electric interactions but does not specify a device structure. Grudkowski et al. show (see cover Figure and column 3, line 31) a heterojunction acoustic charge transport (HACT) device made of GaAs but the SAW propagating region could be LiNbO_3 (column 7, line 30). It would have been obvious to use the Grudkowski et al. device in the Guenzer structure since it represents a functional device. The Grudkowski et al. device includes a SAW transducer 10 which is a passive device.

Art Unit: 2814

12. With respect to claims 11 and 12, the Grudkowski et al. device is a HACT which is an active device.

13. With respect to claims 13 and 14, the charge packets 21 are in the substrate (see cover Figure and column 3, line 53) and are coupled to the acoustic wave.

14. With respect to claim 15, Guenzer shows that the acoustic device can be combined with circuits in the silicon (column 3, line 33) and it would be obvious to provide an electrical interconnect between the two device parts.

15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guenzer in view of Kittel.

16. Kittel shows (see page 415) that LiTaO_3 is a material similar to LiNbO_3 and has a large polarization. It would be obvious to use LiTaO_3 instead of LiNbO_3 as a design alternative since the characteristics are roughly comparable.

Response to Arguments

17. Applicant's arguments filed 10/29/04 have been fully considered but they are not persuasive.

18. Applicant's arguments are addressed to the amended claims which are considered above.

19. Applicant's remarks related to the selection of the Examiner are noted; however, it is not known what justification can be provided by Applicant to permit Applicant to select the Examiner to review the case. Is this shown in the MPEP?

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

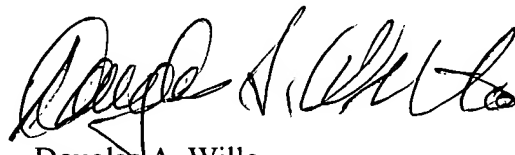
Art Unit: 2814

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A. Wille whose telephone number is (571) 272-1721. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Douglas A. Wille', is written over a horizontal line.

Douglas A. Wille
Primary Examiner